

PATENT SPECIFICATION

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(54) SOUP MIX

(71) We, SPICE & FLAVOUR SERVICES LIMITED, a British Company, of Draycott Mills, Cam, Dursley, Gloucestershire, GL11 5NA, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a soup mix which is suitable for use in a vending machine.

Vending machines are used to a large extent in the catering trade to dispense various food products without the necessity of having kitchen staff and facilities at the point of sale. Among the most popular products for vending are hot drinks, such as tea, coffee and soups. The soups which are made for vending at the present time are mostly of the thin or clear type as the difficulties involved in making a thick vending soup have not hitherto been fully overcome. The present invention is directed to the production of a dry soup mix which forms an instant thick soup.

According to the present invention there is provided a dry soup mix which comprises a thickening agent together with other ingredients to provide colour, flavour, body and texture and wherein the ingredients of the mix are coated with fat which contains an emulsifying agent.

The coating of fat renders the mixture non-hygroscopic and also causes the particles of the mixture to agglomerate to some extent thereby giving the desired free flowing properties. The agglomeration also produces a powder of substantially constant particle size thus preventing settling out during transport and storage. The fat coating delays thickening of the mixture thus preventing clogging up of the feed pipe in the machine.

In making thick vending soup according to this invention the type of fat and type of thickening agent used are of prime importance. In order that the soup powder will dissolve readily when mixed with the hot water, the melting point of the fat must be substantially below the temperature of the water used. The melting point must nevertheless be above the highest expected storage

temperature. The preferred melting point of the fat used is between 45°C and 55°C. There is mixed with the fat an emulsifying agent to help prevent the accumulation of fat at the surface of the made up soup. Any emulsifying agent which will help to keep the fat in suspension is suitable, for example polyoxyethylene sorbitan mono-stearate.

In order to obtain the correct consistency in the made up soup, some care is required in the choice of thickening agent. The thickener used must impart its thickening properties at a temperature substantially below that of the hot water used in the vending machine. The preferred temperature is about 60°C or below. Common flours and starches used for thickening may be used, but potato flour is preferred as most of its thickening power is obtained at or below 60°C. Natural and synthetic gums, speciality starches, such as chemically modified starches, and pregelatinised starches may also be used, the choice being governed largely by the price of the selected material.

The soup mix may be made up in various ways. The preferred method is to form a mixture of all the ingredients including the fat containing the emulsifying agent in powdered form. The temperature of the mix is then raised to slightly above, preferably about 2°C above, the melting point of the fat and the mix is continuously agitated in a mixer. The mixer is then cooled to a temperature below the melting point of the fat.

In the case of a batch process the ingredients may be mixed and heated in a jacketed ribbon mixer. If a continuous process is used the mixture may be passed through a heated worm conveyor.

It is preferred that the mixture is cooled by passing it through a sieve or conveying it in a cold air stream rather than in the mixer. If cold water is passed through the mixer jacket, fat will solidify on the sides of the mixer and not remain on the particles of powder.

An alternative method of making up the mix is to heat the powdered ingredients, other than the fat containing the emulsifying agent, in a ribbon or other suitable mixer to a temperature of about the melting point of the

fat. Molten fat, mixed with emulsifying agent, is then sprayed into the mixer. The resulting powder is then cooled as described above.

- 5 The other ingredients present in the soup mix will vary depending on the particular soup desired. For example, tomato powder would be used to produce tomato soup and dried chicken meat would be used for chicken soup with suitable colouring agents and
- 10 flavouring agents. In addition, other ingredients such as spices, salt, sugar, skim milk powder may be added as desired.

The invention will be further illustrated by reference to the following Example.

15 *Example*

A tomato soup powder was made up to the following formula:

		grams
20	Skim Milk Powder	600
	Potato Starch	840
	Sugar	540
	Salt	300
	Mono Sodium Glutamate	75
25	Tomato Powder	540
	Onion Powder	37.5
	Spices	35.8
	Colouring	11.2
	Powdered Fat	298

- 30 The fat used was hardened palm oil with a melting point of 48°/50°C containing 2% by weight polyoxyethylene sorbitan mono-stearate.

- 35 All the ingredients were mixed together in a jacketed ribbon mixer. When a homogeneous mixture had been obtained, steam was introduced in to the jacket and the temperature of the mixture raised to 52°C. When this temperature had been reached the
- 40 mixer was emptied through a sieve and the powder spread on trays to cool.

The powder obtained was found to flow freely and give a good thick tomato soup when used in an automatic vending machine.

45 **WHAT WE CLAIM IS:—**

1. A dry soup mix which comprises a thickening agent together with other ingredients to provide colour, flavour, body and texture, wherein the ingredients of the
- 50 mix are coated with fat which contains an emulsifying agent.

2. A dry soup mix as claimed in Claim 1 in which the fat has a melting point between 45° and 55°C.

3. A dry soup mix as claimed in Claim 1 or 2 in which the emulsifying agent is polyoxyethylene sorbitan mono-stearate. 55

4. A dry soup mix as claimed in any preceding claim in which the thickening agent is one which imparts its thickening properties at a temperature of 60°C or below. 60

5. A dry soup mix as claimed in any preceding claim in which the thickening agent is potato flour.

6. A process for producing a dry soup mix as claimed in any preceding claim which comprises mixing all the ingredients including the fat containing the emulsifying agent, in powdered form heating to slightly above the melting point of the fat, continuously agitating the mixture, and cooling to below the melting point of the fat. 65

7. A process as claimed in Claim 6 which is carried out batchwise and in which the ingredients are mixed and heated in a jacketed ribbon mixer. 70

8. A process as claimed in Claim 6 which is carried out continuously and the ingredients are passed through a heated worm conveyor. 75

9. A process for producing a dry soup mix as claimed in any of Claims 1 to 5 which comprises heating all the ingredients in powdered form other than the fat and emulsifying agent to a temperature of about the melting point of the fat, spraying molten fat mixed with an emulsifying agent into the mixer and cooling the resulting powder. 80

10. A process as claimed in any of Claims 6 to 9 in which the mixture is cooled by passing it through a sieve. 85

11. A process as claimed in any of Claims 6 to 9 in which the mixture is cooled by conveying it in a cold air stream.

12. A dry soup mix substantially as hereinbefore described with reference to the foregoing Example. 90

13. A process for producing a dry soup mix substantially as hereinbefore described with reference to the foregoing Example. 95

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